CLAIMS

What is claimed is:

1.   A computerized method of automatically generating from a first speech recognizer a second speech recognizer, said first speech recognizer comprising a first acoustic model with a first decision network and corresponding first phonetic contexts, and said second speech recognizer being adapted to a specific domain, said method comprising:

based on said first acoustic model, generating a second acoustic model with a second decision network and corresponding second phonetic contexts for said second speech recognizer by re-estimating said first decision network and said corresponding first phonetic contexts based on domain-specific training data.

2.   The method of claim 1, wherein said domain-specific training data is of a limited amount only.

3.   The method of claim 1, said re-estimating comprising:

partitioning said training data using said first decision network of said first speech recognizer.

4.   The method of claim 3, said partitioning step comprising:

passing feature vectors of said training data through said first decision network and extracting and classifying phonetic contexts of said training data.

5.   The method of claim 4, said re-estimating further comprising:

detecting domain-specific phonetic contexts by executing a split-and-merge methodology based on said partitioned training data for re-estimating said first decision network and said first phonetic contexts.

1 6.   The method of claim 5, wherein control parameters of said split-and-merge

2 methodology are chosen specific to said domain.

1 7.   The method of claim 5, wherein for Hidden-Markov-Models (HMMs) associated

2 with leaf nodes of said second decision network, said re-estimating comprises re-

3 adjusting HMM parameters corresponding to said HMMs.

1 8.   The method of claim 7, wherein said HMMs comprise a set of states s_i and a set

2 of probability-density-functions (PDFS) assembling output probabilities for an

3 observation of a speech frame in said states s_i, and wherein said re-adjusting step is

4 preceded by:

5   selecting from said states s_i a subset of states being distinctive of said domain;

6 and

7   selecting from said set of PDFS a subset of PDFS being distinctive of said

8 domain.

1 9.   The method of claim 7, wherein said method is executed iteratively for additional

2 training data.

1 10.   The method of claim 8, wherein said method is executed iteratively for additional

2 training data.

1 11.   The method of claim 7, wherein said first and said second speech recognizer are

2 general purpose speech recognizers.

1 12.   The method of claim 7, wherein said first and said second speech recognizers

1 are speaker-dependent speech recognizers and said training data is additional speaker-
2 dependent training data.

1 13.   The method of claim 7, wherein said first speech recognizer is a speech
2 recognizer of at least a first language and said domain specific training data relates to a
3 second language and said second speech recognizer is a multi-lingual speech
4 recognizer of said second language and said at least first language.

1 14.   The method of claim 1, wherein said domain is selected from the group
2 consisting of a language, a set of languages, a dialect, a task area, and a set of task
3 areas.

1 15.   A machine-readable storage, having stored thereon a computer program having
2 a plurality of code sections executable by a machine for causing the machine to
3 automatically generate from a first speech recognizer a second speech recognizer, said
4 first speech recognizer comprising a first acoustic model with a first decision network
5 and corresponding first phonetic contexts, and said second speech recognizer being
6 adapted to a specific domain, said machine-readable storage causing the machine to
7 perform the steps of:
8   based on said first acoustic model, generating a second acoustic model with a
9 second decision network and corresponding second phonetic contexts for said second
10 speech recognizer by re-estimating said first decision network and said corresponding
11 first phonetic contexts based on domain-specific training data.

1 16.   The machine-readable storage of claim 15, wherein said domain-specific training
2 data is of a limited amount only.

1 17.   The machine-readable storage of claim 15, said re-estimating comprising:

1 partitioning said training data using said first decision network of said first speech

2 recognizer.

1 18.   The machine-readable storage of claim 17, said partitioning step comprising:

2   passing feature vectors of said training data through said first decision network

3 and extracting and classifying phonetic contexts of said training data.

1 19.   The machine-readable storage of claim 18, said re-estimating further comprising:

2   detecting domain-specific phonetic contexts by executing a split-and-merge

3 methodology based on said partitioned training data for re-estimating said first decision

4 network and said first phonetic contexts.

20.   The machine-readable storage of claim 19, wherein control parameters of said

split-and-merge methodology are chosen specific to said domain.

21.   The machine-readable storage of claim 19, wherein for Hidden-Markov-Models

(HMMs) associated with leaf nodes of said second decision network, said re-estimating

comprises re-adjusting HMM parameters corresponding to said HMMs.

22.   The machine-readable storage of claim 21, wherein said HMMs comprise a set

2 of states s_i and a set of probability-density-functions (PDFS) assembling output

3 probabilities for an observation of a speech frame in said states s_i, and wherein said re-

4 adjusting step is preceded by:

5   selecting from said states s_i a subset of states being distinctive of said domain;

6 and

7   selecting from said set of PDFS a subset of PDFS being distinctive of said

8 domain.

1   23.   The machine-readable storage of claim 21, wherein said method is executed

2   iteratively for additional training data.

1   24.   The machine-readable storage of claim 22, wherein said method is executed

2   iteratively for additional training data.

1   25.   The machine-readable storage of claim 21, wherein said first and said second

2   speech recognizer are general purpose speech recognizers.

1   26.   The machine-readable storage of claim 21, wherein said first and said second

2   speech recognizers are speaker-dependent speech recognizers and said training data

3   is additional speaker-dependent training data.

1   27.   The machine-readable storage of claim 21, wherein said first speech recognizer

2   is a speech recognizer of at least a first language and said domain specific training data

3   relates to a second language and said second speech recognizer is a multi-lingual

4   speech recognizer of said second language and said at least first language.

1   28.   The machine-readable storage of claim 15, wherein said domain is selected from

2   the group consisting of a language, a set of languages, a dialect, a task area, and a set

3   of task areas.

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